ABSTRACT

A method and apparatus for noise extraction in measurements of electromagnetic activity in biological sources. A plurality of body sensors are distributed outside the body for sensing the electromagnetic activity. A plurality of reference sensors are also distributed outside the body, corresponding to the body sensors, for sensing environmental noise. Portions of the body sensor outputs that covary with corresponding portions of the reference sensor outputs are determined and subtracted from the respective body sensor outputs. A shield may be disposed between the body sensors and the reference sensors for shielding the reference sensors from the electromagnetic activity. According to one aspect of the invention, the body sensors are primarily responsive to magnetic fields, and the reference sensors are primarily responsive to electric fields. According to another aspect of the invention, the body sensors are primarily responsive to current flows and the reference sensors are primarily responsive to magnetic fields. According to yet another aspect of the invention, the body sensors are primarily responsive to current flows and the reference sensors are primarily responsive to electric fields.

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